

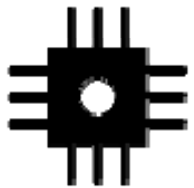


The Next Era of Computing – Enabling Growth and Innovation

*Lauren C. States,
Vice President, Cloud Computing
IBM Software Group*

Open Group Cloud Computing Conference
February 3, 2009

Consider how our world is changing: Our world is becoming smarter and more...



INSTRUMENTED

- **30 billion** embedded RFID tags by 2010
- **1/2 of all sensors** in transportation, facilities & production equipment are smart sensors



INTERCONNECTED

- **1/3 of the world's population** on the Web by 2011
- **4B mobile subscribers** globally at the end of 2008
- **37K cyber attacks** in the US in 2007; 158% increase since 2006

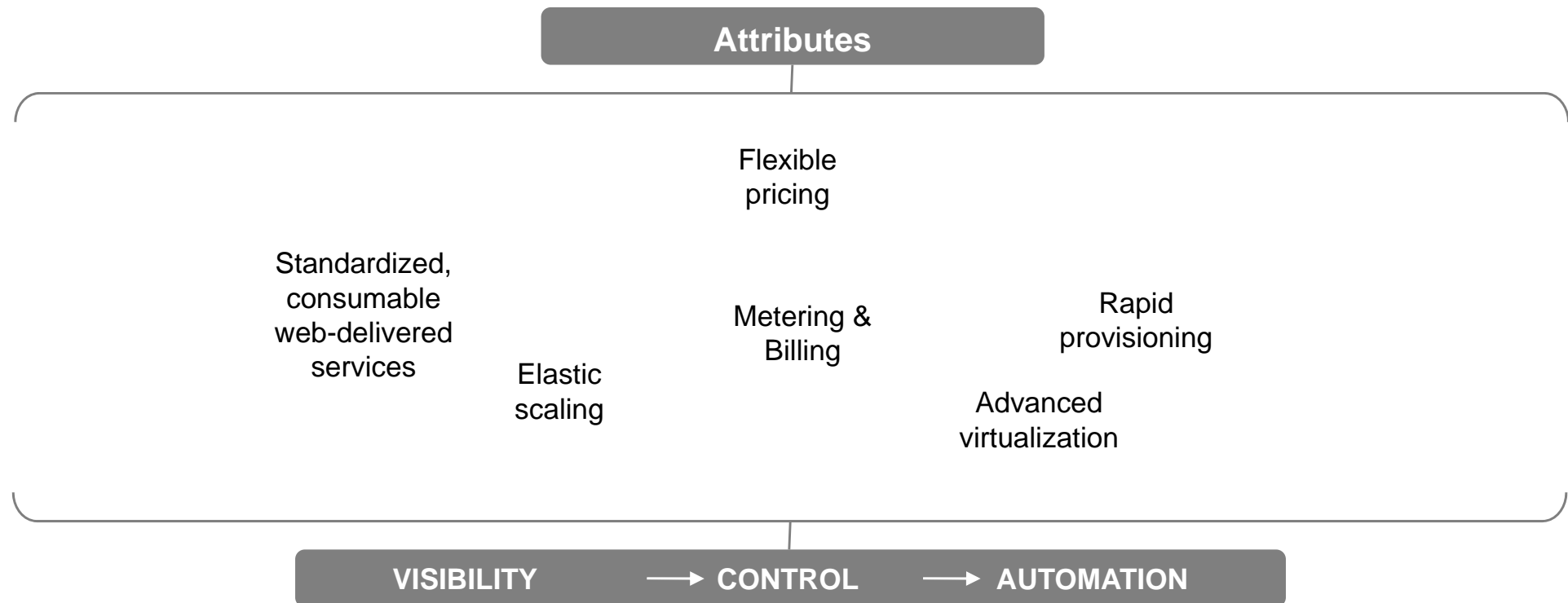


INTELLIGENT

- **15 petabytes of new information** generated every day (8x more than the information in all U.S. libraries)
- **64B credit card transactions/annum; up 35%**

Cloud Computing ...

“**Cloud**” is an emerging consumption and delivery model for many IT-based services, in which the user sees only the service, and has no need to know anything about the technology or implementation



....service oriented and service managed

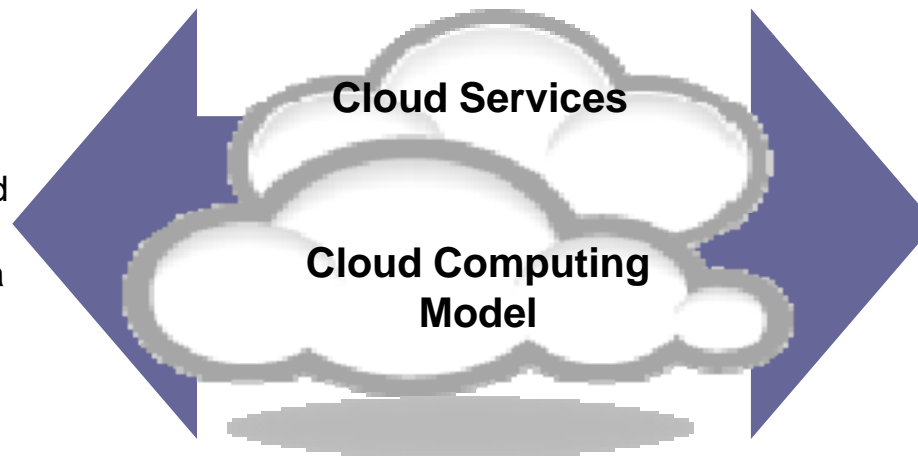
Cloud Computing ...

Flexible Delivery Model

Public ...

- Service provider owned and managed.
- Access by subscription.
- Delivers select set of standardized business process, application and/or infrastructure services on a flexible price per use basis.

....Standardization, capital preservation, flexibility and time to deploy



Private ...

- Client owned and managed.
- Access limited to client and its partner network.
- Drives efficiency, standardization and best practices while retaining greater customization and control

.... Customization, efficiency, availability, resiliency, security and privacy

ORGANIZATION...CULTURE...GOVERNANCE

....service sourcing and service value

Cloud Services...

PEOPLE SERVICES

Access business services anywhere anytime, anyhow

BUSINESS SERVICES

Enhanced B2B and B2C delivery of services and processes

APPLICATION SERVICES

Model, design and build web delivered application and services

PLATFORM SERVICES

Middleware components optimized to deploy, manage and run business applications

INFRASTRUCTURE SERVICES

Simplify access and control to a vast, virtualized pool of IT resources

...becoming interconnected, instrumented, and intelligent

ABSTRACTION

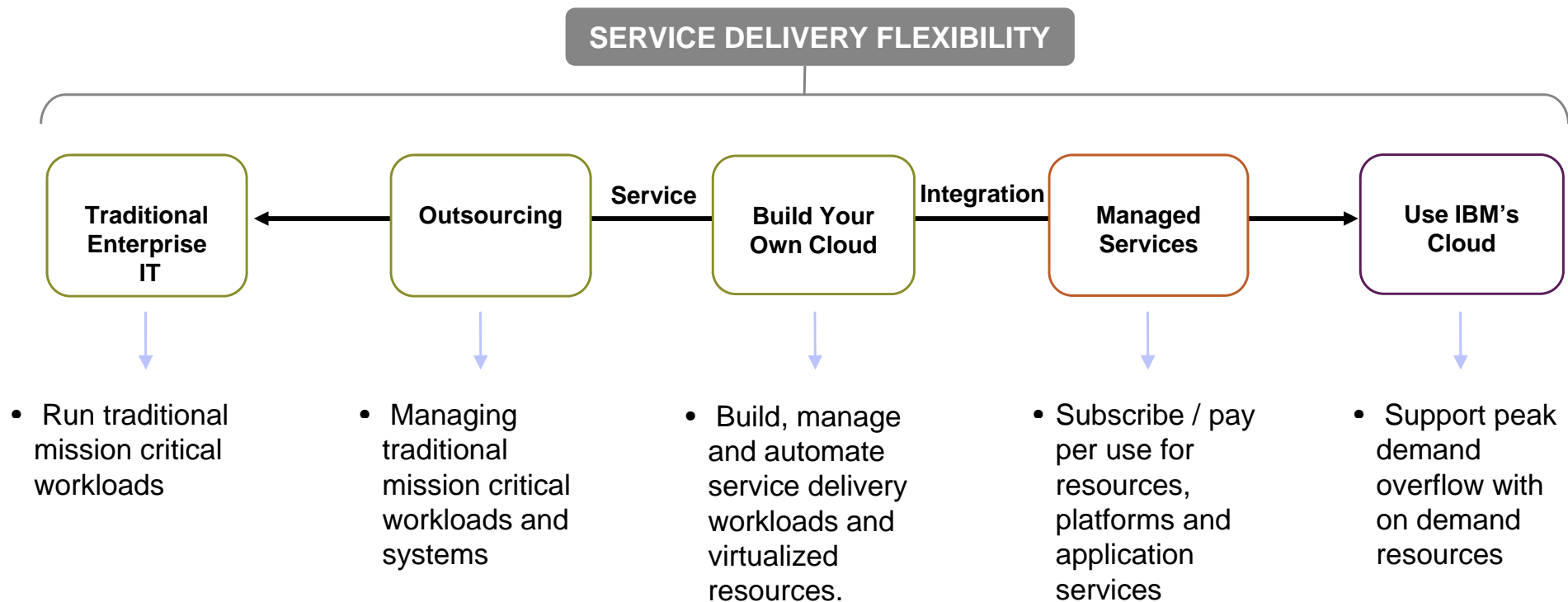
AUTOMATION

CONSUMABILITY

SECURITY

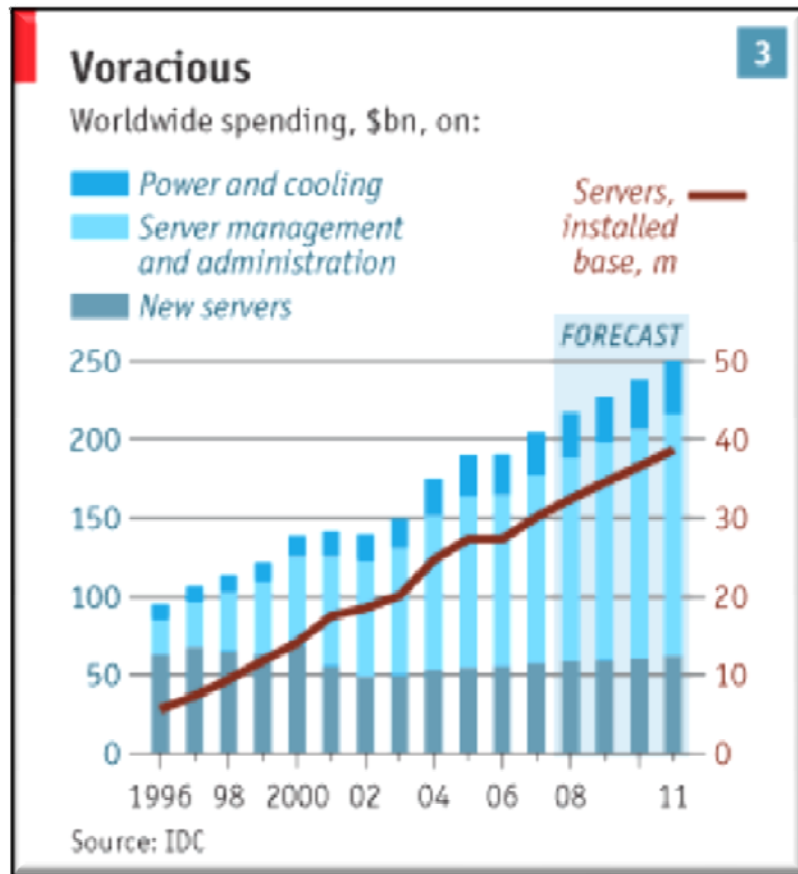
STANDARDIZATION

Service Sourcing Models...



....allow you to develop the right strategy to rapidly and dynamically deliver business and IT services at lower cost

Cloud derives value from the heart of the IT spend...



Global Annual IT Spending *Estimated US\$B 1996-2010*

Uncontrolled System Management Costs

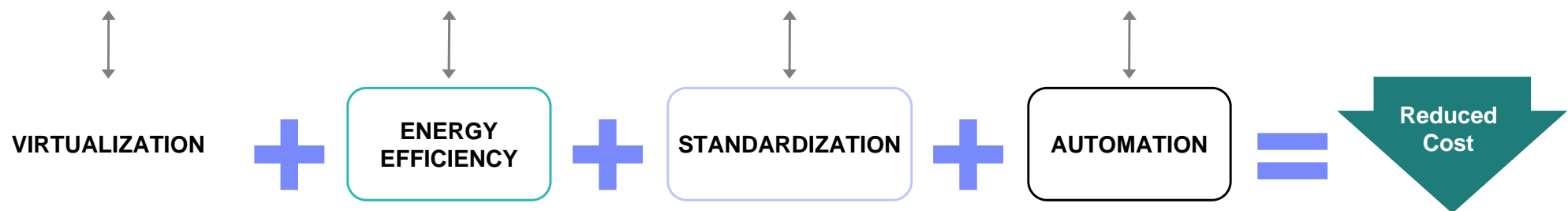
Steady CAPEX Spend

Source: *The Economist*, 10-23-2008

....requiring significant reduction in operating complexity

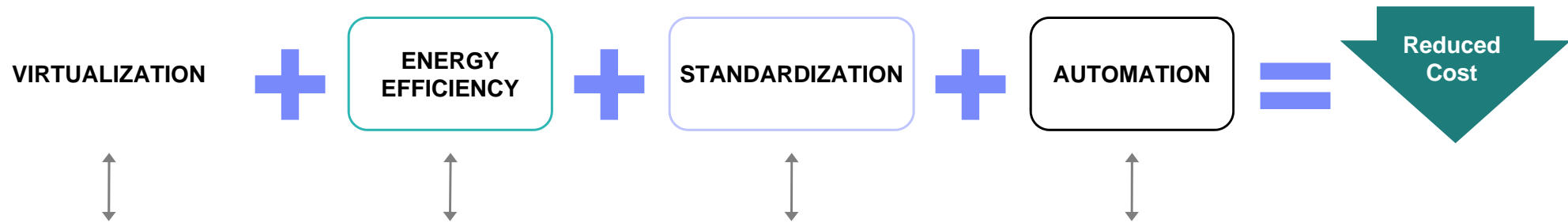
Cloud-onomics...

CLOUD COMPUTING



....leverages virtualization, energy efficiency, standardization and automation to free up operational budget for new investment

Cloud leads to real savings...



IBM TAP:

The Technology Adoption Program (TAP) is IBM's new model for managing technology to drive innovation for our internal transformation & growth

**Hardware, labour
& power savings
reduced annual
cost of operation
by 83.8%**

....by leveraging virtualization, energy efficiency, standardization and automation to free up operational budget for new investment

Clients see the promise of Cloud...

*"I see the **potential to propel my organization's rapid development** efficiently, effectively, and centralized. I think there is endless possibilities for truly building enterprise partnerships using technology to facilitate business relationships around team-based product" –*

In one customer's case IBM's Cloud solution will enable him to achieve a strategic new business model while cutting costs in increasing efficiency

Cloud provides relief from "server sprawl" (where virtualization allowed us to control server sprawl, we're in our second generation, next version of sprawl.) It does this via the functions for automatic de-provisioning based on policies, and will allow us to get to the next level of utilization. Resources that are not in use are freed up for others.

Customer said he has to shave \$20 million in costs from his IT costs in 2009 and cloud is a way he thinks he can achieve this

Cloud is a way for our countries to bridge the technology divide. This puts us ahead if not on par with developed countries.

Cloud Computing

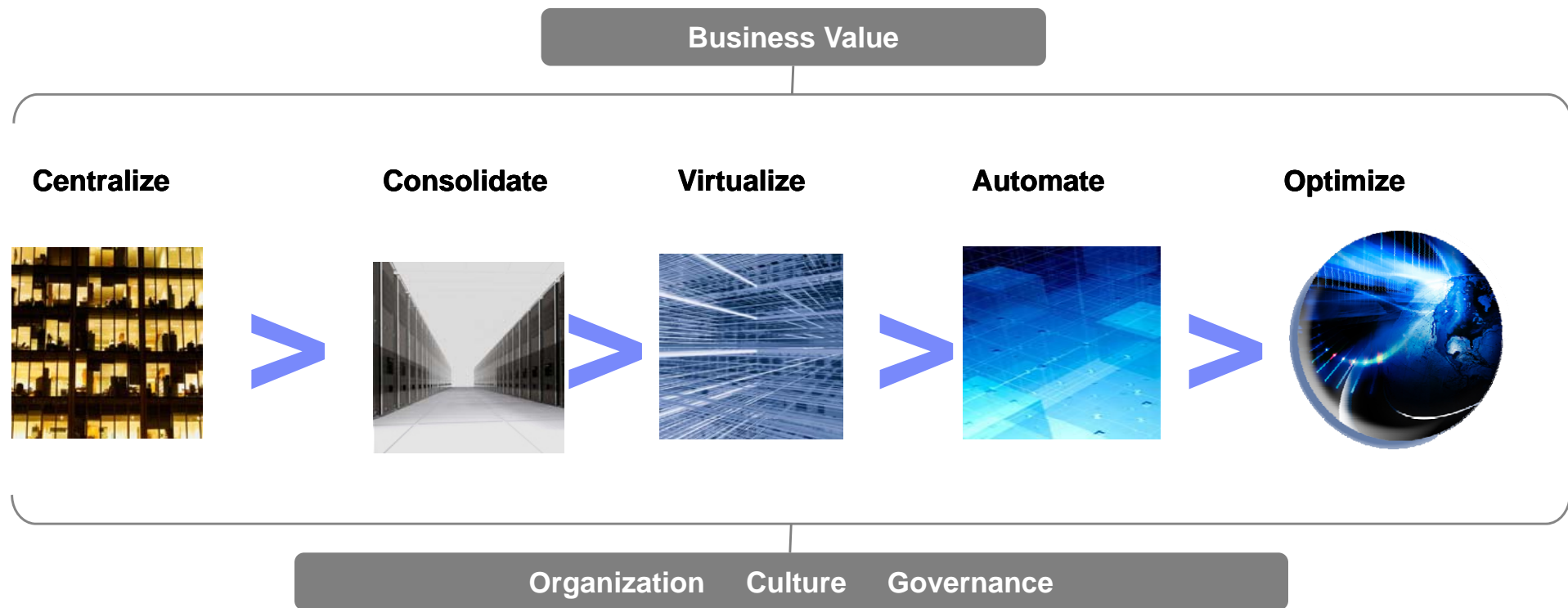
SMART IS

Implementing a strategic new business model without increasing operational costs – from 100s of servers to 1000s of servers



Internet Company: Service Management Center for Cloud Computing, providing end to end service management layer, and automated deployment & management of bare metal & virtualized infrastructure

The journey to cloud...



....requires an integrated and orchestrated approach.

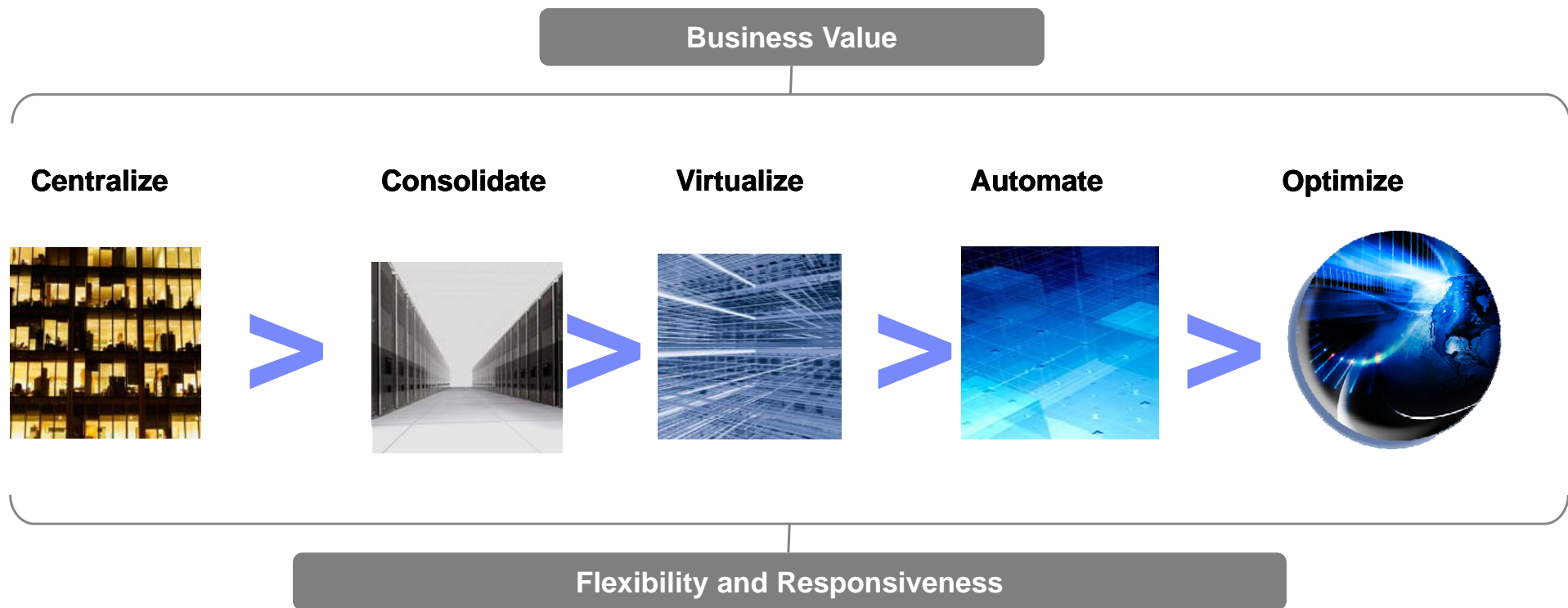
IBM's own smart transformation has delivered results

IBM IT Transformation	<ul style="list-style-type: none"> IBM's IT transformation continues: our own IT investments over the past 5 years have delivered a cumulative benefit yield of \$4.1B
Data Center Efficiencies Achieved	<ul style="list-style-type: none"> Consolidation and virtualization - thousands of servers onto approximately 30 IBM System z™ mainframes Additional virtualization leveraging System p, System x and storage across enterprise Substantial savings being achieved in multiple dimensions: energy, software and system management and support costs
Project Big Green	<ul style="list-style-type: none"> The virtualized environment will use 80% less energy and 85% less floor space 2X existing capacity, no increase in consumption or impact by 2010
Cloud-enabled on demand IT delivery solution	<ul style="list-style-type: none"> Self-service for 3,000 IBM researchers across 8 countries Real time integration of information and business services

	<u>1997</u>	<u>Toda y</u>
CIOs	128	1
Host data centers	155	7
Web hosting centers	80	5
Network	31	1
Applications	15K	4.7K



The journey to cloud...



.... will be shaped by workload affinity and characteristics.

Why Cloud with IBM...



...IBM approaches cloud computing from the inside out, designing a cloud environment or providing cloud-based services for each organizations unique requirements. Find out more at <http://www.ibm.com/ibm/cloud/>

Capabilities

- Business domain expertise across all industries
- Deep business, technical architecture and infrastructure expertise
- Proven tools, assessments and workshops that spans the spectrum from ideation to implementation
- Extensive experience and best practices from client interactions from briefings to Proof of Concepts and Cloud Client engagements
- Experiences from our own IBM transformation
- Open standards based approach
- The broadest systems, storage, software and services cloud portfolio in the industry
- Unparalleled research organization and extensive patent leadership

IBM Worldwide Client Centers

- Executive Briefing Centers
- Proof of Concept and Benchmark Centers
- Cloud Computing Centers

Challenges

- Standards and portability
- Security and privacy
- Hybrid sourcing management and governance



Agenda

- **Business Challenge**
- **Cloud Computing**
- **Business Value**

IBM Cloud Offerings...

<i>Consulting</i>	<i>Implementation</i>	<i>Cloud Delivered</i>
<ul style="list-style-type: none"> ▪ Infrastructure strategy & planning services ▪ Business cloud consulting services ▪ IT optimization services 	<ul style="list-style-type: none"> ▪ Service Management for Cloud Computing ▪ Test and Developer Cloud Services ▪ Scale out File Services 	<ul style="list-style-type: none"> ▪ LotusLive ▪ Computing on Demand ▪ Information Protection Services ▪ Managed Data Protection for desktops and laptops

.... a portfolio of cloud consulting, implementation and delivered services

An Architectural Model for Cloud Computing

Service Request & Operations

IT Infrastructure & Application Provider

Service Creation & Deployment

